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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/666,722	09/20/2000	Yoshiaki Tanaka	0102/0138	6231

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EXAMINER	
SELLERS, DANIEL R	

ART UNIT	PAPER NUMBER
2644	7

DATE MAILED: 11/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/666,722	TANAKA ET AL.
	Examiner	Art Unit
	Daniel R. Sellers	2644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 September 2000*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *9/20/00, 4/15/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 13 is objected to because of the following informalities: the claim adds an additional step to the parent claim 12, which is in written in a closed form (i.e. "comprising the steps of"). Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 1, 2, 5, 6, 9, 11, 15, and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Heo et al. (Heo), U.S. Patent No. 5,987,417.

4. Regarding claim 1, see Heo

A signal processing apparatus comprising:

means for converting a data stream containing audio packs into packets each having a given area assigned to real data, the audio packs storing PCM multiple-channel audio contents information; and means for enabling channel information and a portion of the audio contents information to be placed in adjacent portions of the given area respectively, the channel information corresponding to the portion of the audio contents information. (Col. 12, lines 23-31).

Heo teaches a signal processing apparatus that decodes information stored on a DVD with these features.

5. Regarding claim 2, see Heo

A signal processing apparatus comprising:
means for receiving packets each having a given area assigned to real data, the packets resulting from conversion of a data stream containing audio packs storing PCM multiple-channel audio contents information, channel information and a portion of the audio contents information being placed in adjacent portions of the given area respectively, the channel information corresponding to the portion of the audio contents information; and
means for decoding the channel information. (Col. 20, lines 62-65 and Fig. 16 and 17).

Heo teaches a decoding device with the means for receiving channel information and decoding of channel information.

6. Regarding claim 5, see Heo

A signal processing apparatus comprising:
means for converting a data stream containing an audio data stream into packets each having a given area assigned to real data, the audio data stream storing audio data resulting from a compression process; and
means for enabling compression information to be placed in the given area, the compressing information representing a type of the compression process. (Col. 19, lines 63-66).

Heo teaches a decoding device that can decode a MPEG2 compressed data stream.

7. Regarding claim 6, see Heo

A signal processing apparatus comprising:
means for receiving packets each having a given area assigned to real data, the packets resulting from conversion of a data stream containing an audio data stream storing audio data resulting from a compression process, compression information being placed in the given area, the compression information representing a type of the compression process; and
means for decoding the compression information. (Col. 12, lines 15-17 and lines 37-43).

Heo teaches a device that reproducing audio data from a DVD containing compressed information.

8. Regarding claim 9, see Heo

A signal processing apparatus comprising:
means for converting a data stream containing audio packs into packets each having a given area; and
means for enabling at least one of a down sampling flag, a down mix flag, and a dequantization flag to be placed in the given area. (Col. 20, lines 39-42 and Col. 21, lines 34-43).

Heo teaches a device that decodes a stream containing audio packs and a stream that has a down sampling flag, a down mix flag, and a dequantization flag placed in a given area.

9. Regarding claim 11, see Heo

A signal processing apparatus comprising:
means for receiving packets each having a given area, the packets resulting from conversion of a data stream containing audio packs, wherein at least one of a down sampling flag, a down mix flag, and a dequantization flag is placed in the given area; and
means for decoding the at least one of the down sampling flag, the down mix flag, and the dequantization flag. (Col. 21, lines 34-43).

Heo teaches these features.

10. Regarding claim 15,

A signal processing apparatus comprising:
means for converting a data stream containing audio packs into packets each having a given area assigned to real data, the audio packs storing audio data resulting from an encoding process; and
means for enabling encoding information to be placed in the given area, the encoding information representing a type of the encoding process.

See the above rejection of claim 5, Heo teaches the use of compressed and uncompressed data in the stream. A compression method is a method of encoding.

11. Regarding claim 16,

16. A signal processing apparatus comprising:
means for receiving packets each having a given area assigned to real data. the packets resulting from conversion of a data stream containing audio packs storing audio data resulting from an encoding process, encoding information being placed in the given area, the encoding information representing a type of the encoding process; and
means for decoding the encoding information.

See the above rejection of claims 6 and 15. Heo teaches these features.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. Claims 3, 4, 7, 8, 10, 12-14, 17, 18, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heo and Horiguchi et al. (Horiguchi), U.S. Patent No. 6,137,949.

14. Regarding claim 3, see Horiguchi

A method of signal transmission, comprising the steps of:
converting a data stream containing audio packs into packets each having a given area assigned to real data, the audio packs storing PCM multiple-channel audio contents information;
enabling channel information and a portion of the audio contents information to be placed in adjacent portions of the given area respectively, the channel information corresponding to the portion of the audio contents information; and
transmitting the packets via a serial interface. (Col. 1, lines 24-26).

Horiguchi teaches that a serial interface, the IEEE-1394 interface, can be used to transmit digital audio/video signals between digital devices. Horiguchi does not teach the method of converting a stream or enabling channel information. Heo teaches the decoding of a DVD audio disk, which decodes a stream of information with channel information adjacent to the audio content. Heo does not teach transmission of information over a serial interconnect. It would have been obvious for one of ordinary skill in the art to combine the teachings of Horiguchi and Heo for the faster transmission of signals.

15. Regarding claim 4, see the above rejection of claim 3,

A signal transmission medium comprising:
means for converting a data stream containing audio packs into packets each having a given area assigned to real data, the audio packs storing PCM multiple-channel audio contents information;
means for enabling channel information and a portion of the audio contents information to be placed in adjacent portions of the given area respectively, the channel information corresponding to the portion of the audio contents information; and
means for transmitting the packets from a transmission side to a reception side via a serial interface.

The above combination of Horiguchi and Heo teach the transmission of packets from a transmission side to a reception side via a IEEE-1394 interface.

16. Regarding claim 7, see the above rejections of claims 3 and 5.

A method of signal transmission, comprising the steps of:
converting a data stream containing an audio data stream into packets each having a given area assigned to real data, the audio data stream storing audio data resulting from a compression process;
enabling compression information to be placed in the given area, the compression information representing a type of the compression process; and
transmitting the packets via a serial interface.

Heo teaches the features of converting a data stream and the enabling of compression information to be placed in a given area. Horiguchi teaches the transmission of packets via a serial interface.

17. Regarding claim 8, see the above rejections of claims 4 and 7.

A signal transmission medium comprising:
means for converting a data stream containing audio packs into packets each having a given area assigned to real data, the audio packs storing audio data resulting from a compression process;
means for enabling compression information to be placed in the given area, the compression information representing a type of the compression process; and
means for transmitting the packets from a transmission side to a reception side via a serial interface.

The combination of Heo and Horiguchi teach these features.

18. Regarding claim 10, the further limitation of claim 9, see Horiguchi

... further comprising means for down-sampling and dequantizing main data into processing-resultant data, means for receiving a transmission request, and means for loading the packets with the processing-resultant data and transmitting the packets in response to the received transmission request. (Col. 2, lines 18-25).

Horiguchi teaches the method of decoding via a MPEG decoder before transmission of a signal. Horiguchi does not teach the means for down-sampling or dequantizing, however Heo teaches the method of decoding a digital stream according to a down-sampling or dequantizing flag included within the data stream. Horiguchi's teachings, in light of Heo's teachings, would render it obvious to one skilled in the art to have invented a device that would down-sample or dequantize the stream before transmission.

19. Regarding claim 12, see the above rejections of claims 3 and 11.

A method of signal transmission, comprising the steps of:
converting a data stream containing audio packs into packets each having a given area;
enabling at least one of a down sampling flag, a down mix flag, and a dequantization flag to be placed in the given area; and
transmitting the packets via a serial interface.

The combination of Heo and Horiguchi teach these features.

20. Regarding claim 13, the further limitation of claim 12,

... further comprising the steps of down-sampling and dequantizing main data into processing-resultant data, receiving a transmission request, and loading the packets with the processing-resultant data and transmitting the packets in response to the received transmission request.

See the rejections of claims 10 and 12. The combination of Heo and Horiguchi teach these features.

21. Regarding claim 14, see the above rejections of claims 4 and 12.

A signal transmission medium comprising:
means for converting a data stream containing audio packs into packets each having a given area;
means for enabling at least one of a down sampling flag, a down mix flag, and a dequantization flag to be placed in the given area; and
means for transmitting the packets from a transmission side to a reception side via a serial interface.

The combination of Heo and Horiguchi teach these features.

22. Regarding claim 17, see the above rejections of claims 3 and 15,

A method of signal transmission, comprising the steps of:

converting a data stream containing audio packs into packets each having a given area assigned to real data, the audio packs storing audio data resulting from an encoding process;
enabling encoding information to be placed in the given area, the encoding information process; and
representing a type of the encoding transmitting the packets via a serial interface.

The combination of Heo and Horiguchi teach the transmission of packets via a serial interface. They also teach that the encoding information is placed in a given area.

23. Regarding claim 18, see the above rejections of claims 4 and 17,

A signal transmission medium comprising:
means for converting a data stream containing audio packs into packets each having a given area assigned to real data, the audio packs storing audio data resulting from an encoding process;
means for enabling encoding information to be placed in the given area, the encoding information representing a type of the encoding process; and
means for transmitting the packets from a transmission side to a reception side via a serial interface.

The combination of Heo and Horiguchi teach these features in the transmission of packets.

24. Regarding claim 20, the further limitation of claim 14, see Heo

... wherein the down sampling flag indicates halving an original sampling frequency. (Col. 21, lines 34-39).

Heo teaches that the audio stream has a flag requiring the sampling frequency to be halved.

25. Claim 19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Heo and Horiguchi as applied to claims 8 and 18 above, and further in view of Maeda et al. (Maeda), U.S. Patent No. 6,072,759.

26. Regarding claim 19, the further limitation of claim 18, see Maeda

A signal transmission medium as recited in claim 18, wherein the encoding process comprises a 1-bit DSD encoding process. (Col. 4, lines 53-63).

Maeda teaches the DSD encoding based on the DVD format. A table of contents (TOC) identifies the inclusion of DSD data on the disc. Maeda does not teach the transmission of data as claimed in the parent claim 18. The combination of Heo and Horiguchi teaches the features as claimed in the parent claim. However the combination does not teach the encoding process as a 1-bit DSD process. It would have been obvious for one of ordinary skill in the art to combine the teachings of Maeda with the combination of Heo and Horiguchi for the purpose of superior sound quality in audio data.

27. Regarding claim 21, the further limitation of claim 8, see the above rejection of claims 8 and 19.

... wherein the compression information comprises information representing that DSD encoded data are compressed by a predetermined compression process.

The combination of Maeda, Heo, and Horiguchi teach the above features.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel R. Sellers whose telephone number is 703-605-4300. The examiner can normally be reached on Monday to Friday between 9am and 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W. Isen can be reached on 703-305-4386. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DRS

FORESTER W. ISEN
SUPERVISORY PATENT EXAMINER